

Review

Climate Change, Social Work, and the Transition Away from Fossil Fuels: A Scoping Review

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Abstract: Climate change is a crisis in our midst. This scoping review examines practices to transition away from fossil fuels in the social work literature, to inform social work engagement in climate mitigation and in support of the United Nations Sustainable Development Goals 7 (Affordable and Clean Energy) and 13 (Climate Action). We searched peer-reviewed and grey literature, applying the inclusion criteria: (1) published on or since 1 January 2005; (2) social work literature; (3) examines at least one topic related to the transition away from fossil fuels; and (4) describes, examines, or evaluates a specific form of practice for the transition away from fossil fuels that occurred or is occurring. Fifty-eight items met the inclusion criteria, containing 79 practices. The most frequent practice types were “organizing or advocacy” and “energy at home”. Common targets of change were individuals/households and private industry. The most organizing against private industry was led by Indigenous or Tribal nations. More social work engagement in the transition away from fossil fuels is needed, including engagement that embraces an ecosocial approach. Local organizing, advocacy, and program development are an area of strength and an intervention scale at which social workers can influence multi-prong efforts to transition away from fossil fuels. New social work policy analysis and advocacy at global, national, and state levels is also recommended.

Keywords: climate change; energy; fossil fuel; global warming; mitigation



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1. Introduction

Climate change is an unfolding and existential crisis in our midst. As described in *The Lancet's* most recent climate change and health report, we are at a “code red” for a healthy future [1]. Excess greenhouse gas (GHG) emissions, produced by extractive and consumptive human economic activity, have already caused an estimated 1.1 °C increase in average global surface temperature and are likely to cause a total increase of 1.5 °C by 2060 even if major emission reductions begin today [2]. With climate change comes changing weather patterns, such as more frequent and severe heat waves, hurricanes, precipitation extremes, and winter storms [3], which put the health and well-being of millions of people, worldwide, at risk [1]. The impacts of climate change disproportionately harm the most socially, economically, and politically marginalized groups—also referred to as most affected people and areas (MAPAs)—rendering climate change a matter of social justice and a critical problem for social work to address [4–6].

While social work scholarship on the climate and other environmental crises has been growing, much initial literature focused on calls-to-action rather than concrete intervention [7]. As social work increases its action to address climate change, an ecosocial worldview can provide a holistic framework for social work engagement with not just social systems, but also the ecological systems in which all humans are embedded, and an awareness of the intersecting, interconnected needs of the human and ecological world [8,9].

Further, one way that social workers can pursue concrete action is through a focus on the United Nations 17 Sustainable Development Goals (SDGs). It is important to note that

the term “sustainable” reinforces a growth ideology that is deeply rooted in the exploitative and extractive systems that created and perpetuate the climate crisis [9], that it can be used to depoliticize debates that in actuality should be politicized, as Asara et al. (p. 376) write, “about what kind of society (and sustainability) we want to live in” [10], and that terms such as regenerative and ecological justice may better align with an ecosocial worldview. Nonetheless, the global and interdisciplinary nature of the SDGs can provide social workers with a common language used by an array of fields and with a global agenda that urgently needs the skills of social workers who are embracing a shift to an ecosocial approach.

The SDGs, adopted by United Nations members in 2015, laid out 17 specific goals with targets to be reached by 2030 that prioritize people, planet, prosperity, peace, and partnership [11]. As 2030 quickly approaches, not only have many of the targets not been reached, but some are moving in the wrong direction, especially SDG 13: Climate Action, with global CO₂ emissions reaching their highest level in human history in 2021 [12].

To inform social work efforts to confront the climate crisis—especially one of its most significant drivers, societal dependence on fossil fuels as an energy source and a major contributor of CO₂ emissions—and in response to the research gap on social work, climate change, and concrete intervention, this study asks: What is the extent and nature of specific practices to transition away from fossil fuels that are documented in the social work literature? Our objectives are to describe the basic characteristics of this literature, describe and discuss the types and nature of practices that it includes, and identify future directions for the social work profession that would support transitioning away from fossil fuels—and transitioning to clean energy sources—as a pressing climate mitigation strategy. While a just transition intersects with many of the SDGs, our focus is primarily related to SDG 13: Climate Action and SDG 7: Affordable and Clean Energy, with the latter being a particular area of focus encouraged by this special issue on “Ecosocial work and Sustainability.”

1.1. SDG 13: Climate Action

For climate action, both adaptation to climate change and mitigation of it are urgently needed. *Adaptation* to climate change means adjusting to the actual and expected impacts of the climate crisis. Examples of how social workers already support adaptation include identifying disparities in who is most affected by the consequences of climate change [13], working directly with MAPAs [14,15], challenging structural systems which are at the root of such disparities [9,16], and working for greater disaster preparedness and emergency response in the context of the climate crisis [17].

Mitigation of climate change means reducing the GHG emissions generated by human activity and increasing natural sinks that absorb them, such as forests. Transitioning away from fossil fuels as an energy source—which is the focus of this study—is a particular mitigation strategy that is critically and urgently needed. Globally, 80% of energy is derived from fossil fuels, and two-thirds of global GHG emissions are energy-related [18]. In the U.S., 74% of 2019 GHG emissions were from fossil fuel combustion [19]. In a “best case” scenario from the IPCC, if global GHG emissions start to decline by 2025, the increase in average global surface temperature will cap at 1.8 °C by 2100. Under a “business-as-usual” scenario, however, decades of delay in decreasing GHG emissions may mean an average global surface temperature increase as high as 4.4 °C by 2100, relative to the 1850–1900 average temperature—an increase that would not be survivable in many of the ecosystems that sustain life [2].

1.2. SDG 7: Affordable and Clean Energy

Recent reviews suggest that social work’s attention to disparities, consequences, and post-disaster response to environmental change issues, including the climate crisis, are more common than mitigation or prevention efforts [7,17]. Yet, without urgent and significant action on climate mitigation—and the transition away from fossil fuels, in particular—the long-term survival of our species and countless others is in doubt. This leads to the connection of this study with SDG 7: Affordable and Clean Energy. While organizing,

protests, and resistance to fossil fuel companies and reducing emissions is crucial, social workers must also help build capacity for clean and renewable energy efforts to hold the dual focus of resistance and reducing harms with building and increasing resilience (in the sense of supporting and building communities that are prepared for a warming world).

2. Methods

We used a scoping review methodology to investigate the extent, scope, and nature of specific efforts to transition away from fossil fuels in the social work literature over a 15-year period. The scoping review methodology was chosen as it is “an ideal tool to determine the scope or coverage of a body of literature on a given topic and give clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus” [20] (p. 2). We used the methodological framework from Arksey and O’Malley [21], with enhancements recommended by Levac et al. [22] and Colquhoun et al. [23]. We implemented the PRISMA-ScR checklist for documenting and reporting findings [24].

2.1. Inclusion Criteria

We established four inclusion criteria:

1. Published on or since 1 January 2005;
2. Social work literature, defined as meeting one or more of the following:
 - a. Published in a social work journal;
 - b. Published by a social work association;
 - c. Published in a social work book, workbook, or curricular resource;
 - d. Authored by at least one person with a social work affiliation;
3. Examines at least one topic related to the transition away from fossil fuels;
4. Describes, examines, or evaluates a specific form of practice for the transition away from fossil fuels to other energy sources that occurred or is occurring.

For criterion (1), we chose this date to provide a contemporary review of the literature. In two systematic reviews of the broader environmental social work scholarship [7,25], 2005 was a turning point at which the volume of new publications began to annually increase, after at least two decades of a small volume of publications and little growth. For criterion (2), we consider “social work journal” to be a journal with “social work” in its title or a journal listed in Perron et al. [26] (pp. 5–6, Table 1, “Summary of Journal and Article Records Contained in the Social Work Research Database”). For criterion (3), we include literature that considers the problematic aspects of fossil fuel as an energy source, as well as literature that examines the move away from fossil fuels and toward clean or renewable energy. For criterion (4), we include micro, mezzo, and macro forms of practice, regardless of whether a social worker was explicitly mentioned as part of practice implementation. We specify “a specific form of practice . . . that occurred or is in occurring” to exclude literature that is solely conceptual, call-to-action, problem-focused, hypothetical (rather than lived or actual), or generalized examples of practice in this area.

2.2. Literature Search and Screening

2.2.1. Peer-Reviewed Literature

In consultation with a university librarian, we searched the following academic databases for peer-reviewed articles: Agricultural & Environment Science Collection, EBSCO Host (specifically, Academic Search Complete, APA PsycInfo, Environment Complete, GreenFile, and SocIndex with Full Text), Public Affairs Information Service, PubMed, Social Services Abstracts, Sociological Abstracts, and Web of Science Core Collection. We chose these databases for their comprehensive coverage of social work, environmental, and other social and health sciences.

Also in consultation with the librarian, we created search strings and ran four separate searches in each database, as follows:

1. "social work"
AND;
2. case OR service* OR therap* OR counsel* OR assessment* OR interven* OR treatment* OR practice* OR program* OR "community organizing" OR "community development" OR "capacity build*" OR grassroots OR advocacy OR activis* OR policy OR policies
AND;
3. One of the following for each of the four searches, in each database:
 - a. oil OR gas* OR "natural gas*" OR coal OR petrol* OR carbon* OR decarbon* OR frack* OR (hydr* AND fractur*) OR mining OR drilling OR "fossil fuel*" OR "greenhouse gas*" OR "conventional* energ*" OR "traditional* energ*";
 - b. energ* AND (clean* OR green OR renew* OR solar OR wind OR hydroelectric* OR hydropower OR ocean OR water OR geothermal OR bio* OR nuclear OR hydrogen);
 - c. "just* transition*" OR "equit* transition*" OR "sustain* transition*" OR "climate justice" OR "energy justice" OR "energy poverty" OR "transition town" OR "boom town" OR "boomtown" OR "oil boom" OR "gas boom";
 - d. (climat* OR greenhouse OR "global warming") AND mitigat*.

Search strings (1) and (2) were searched in any field (e.g., Anywhere, All Fields, or Unspecified, depending on the database's search options). For search strings 3(a)–3(d), we limited the search to "Anywhere except full text" or its analog depending on the database (e.g., Title/Abstract, Title/Subject/Abstract, Topic). The peer-reviewed search phase yielded 3009 articles. After removing duplicate records, 2001 remained.

We used Covidence systematic review software [27] to manage the screening and inclusion process for peer-reviewed articles. Two authors independently screened the title and abstract of the 2001 non-duplicate records. After screening, 640 articles remained. Two authors then read the full text of the 640 articles. Of these, 24 met the inclusion criteria (Figure 1) [6,28–50]. Throughout the screening and inclusion process, any differing recommendations to include or exclude were discussed and reconciled as a team before final decisions were made.

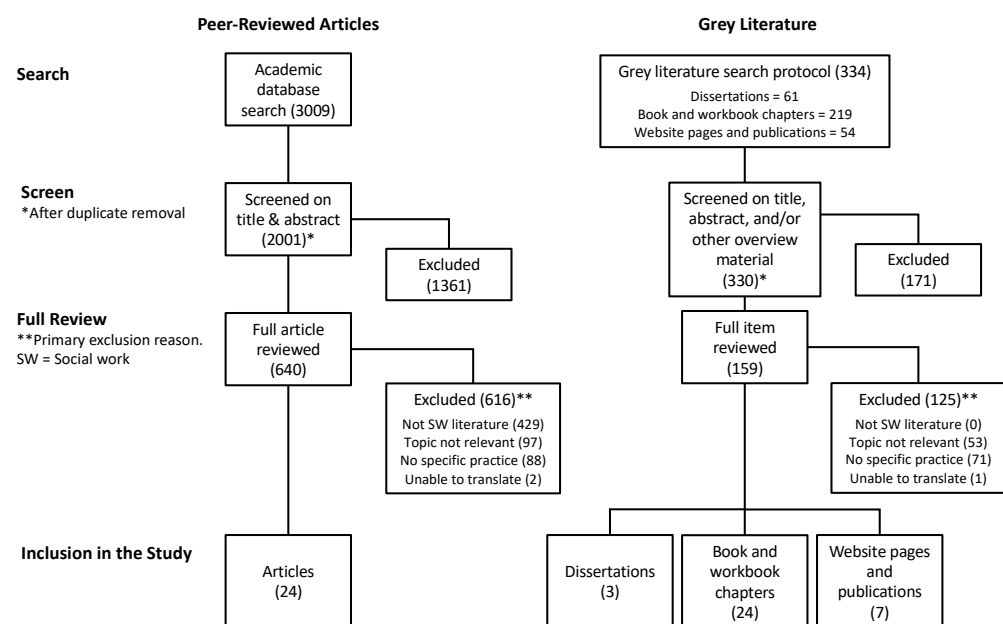


Figure 1. Flow chart of search, screen, and review process.

2.2.2. Grey Literature

We searched for the following kinds of grey literature: dissertations, book and workbook chapters, and website pages or publications. To conduct the search, we created a grey literature search protocol in consultation with a university librarian and outlined sources, search terms, and limits as recommended by Godin et al. [51].

We searched for dissertations using the ProQuest dissertations database and the four search strings described in the Peer-Reviewed Literature section above. We selected “social work” as the subject and limited the search to work published since 2005. The search identified 61 dissertations, which were then independently screened by two authors. Six were read in full, and three met inclusion criteria [52–54].

We treated book and workbook chapters as grey literature because, “. . . though they are produced and distributed commercially by publishers and may be widely available, studies located in them are often difficult to identify through typical search procedures,” [55] (p. 105). For book chapters, we identified 13 books written by social workers leading in environmental and climate scholarship, identified by the authors through existing knowledge, database searches, and in consultation with the university librarian. For workbook chapters, we included three workbooks on sustainability, published by the International Federation of Social Workers, already known to the author team. Two authors independently screened the 219 chapters (from the 13 books and 3 workbooks) by using title, table of contents, glossaries, index, and “about the book” introductory sections, if available. Of these, 103 were reviewed in full, and 24 met inclusion criteria [56–79].

Finally, we selected three targeted social work websites to search based on our knowledge of the profession: (1) International Federation of Social Workers, (2) International Council on Social Welfare, and (3) Grand Challenges for Social Work. Because these websites did not support Boolean searches, we used the following keywords to search for relevant webpages or publications: carbon, coal, emission, energy, “fossil fuel”, greenhouse, “just transition”, mining, oil, pipeline, and solar. We recorded 54 potentially relevant records from the web browser searches, of which 4 were duplicates, and transferred 50 of these to an Excel spreadsheet for full-text review. Of these, seven met inclusion criteria [80–86].

As with peer-reviewed literature, throughout the screening and inclusion process of grey literature items, any differences among the author team were discussed and reconciled together. Figure 1 also captures the search, screen, and review process for grey literature.

2.3. Data Extraction and Analysis

We used Excel to collect and record data from the included literature. The first author collected data from the 24 peer-reviewed articles, and the second and third authors collected data from the 34 grey literature items. Any questions during data collection were discussed and resolved as a team or were reviewed and decided by the first author.

In Excel, we recorded data on the following: year of publication, type of publication, practice type, brief narrative description of the item (or part thereof) containing the practice, overall purpose of the item (or part thereof) containing the practice (e.g., program evaluation or research, policy description, policy analysis, example of action, etc.), country/countries of practice implementation and their UNICEF regional classification [87], the scale at which the practice was implemented (e.g., individuals or households; neighborhood, community, or village; city, county or similar level unit of a country; etc.); and the main target(s) of change of the practice (e.g., individuals or households, local policy or planning, private industry, etc.).

Some items included more than one practice; in these cases, data for each practice were recorded separately. Across the 58 included literature items, data were collected on 79 practices. Additionally, some aspects of the data collection process were iterative. For example, after collecting data on all practices, the first author then categorized them into major types of practice that emerged (e.g., global policy, organizing or advocacy, energy at home, etc.). Finally, practices were included even if they were only briefly described (e.g., a

sentence or paragraph about the practice); they did not need to be analyzed in depth to meet inclusion criteria for this study.

Descriptive statistics were run using SPSS, Version 28.0.

3. Results

3.1. Basic Characteristics of the Literature

A total of 58 literature items met study inclusion criteria: 24 peer-reviewed journal articles, 24 book and workbook chapters, 7 website pages and publications, and 3 dissertations. Publication of these items accelerated over time (Figure 2), with 2 of the 58 (3.4%) published from 2005–2010, 16 (27.6%) from 2011–2015, 37 (63.8%) from 2016–2020, and 3 (5.2%) with an unknown publication date. While some of this trend is affected by book and workbook publication (e.g., one book may have several chapters included in this study, all with the same publication year), the trend for only journal articles is similar, suggesting an upward trajectory of social work literature on the transition away from fossil fuels in recent years: 1 of 24 (4.2%) from 2005–2010, 9 (37.5%) from 2011–2015, and 14 (58.3%) from 2016–2020.

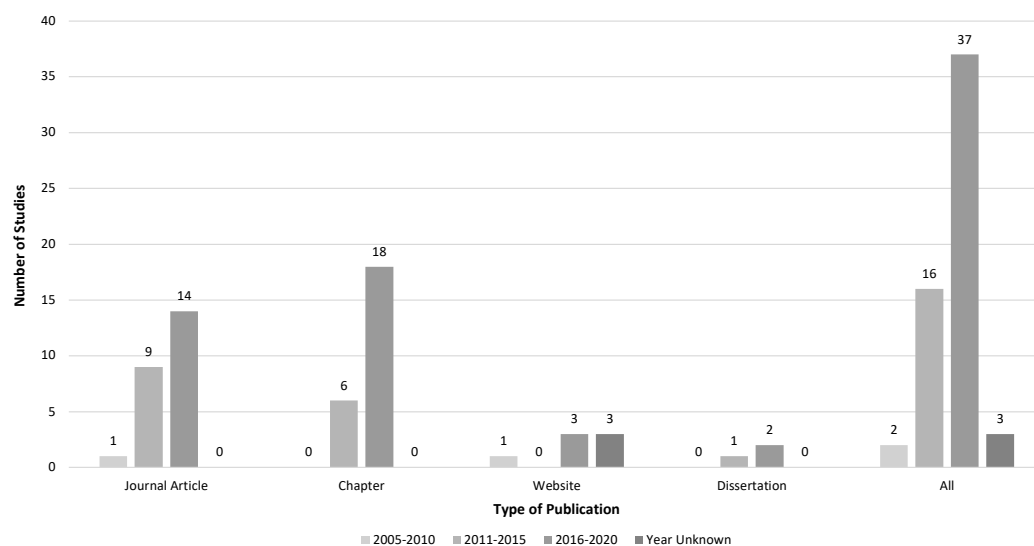


Figure 2. Publication trend over time, by type of publication ($N = 58$).

3.2. Types and Nature of Practices Included

From this section forward, we present findings across the 79 practices that were included in the 58 literature items. A summary of data collected about each practice, and the item that it came from, is available in the supplemental online resource (Table S1).

3.2.1. Regional Classification

Using UNICEF [87] regional classifications for countries, the most frequent region for practice implementation was North America (Canada and U.S.; 38.0% of practices), followed by global (15.2%), East Asia and Pacific (15.2%), Western Europe (10.1%), and Latin America and the Caribbean (8.9%) (Table 1). Where relevant, we provide country setting detail in Section 3.2.2 (Practice Types).

Table 1. Regional classification of where practice was implemented, by practice type and for all practices ($N = 79$).

Geographic Region	Global Policy ($n = 8$)	National Policy ($n = 11$)	Local Policy or Planning ($n = 5$)	Organiz. or Advoc. ^a ($n = 19$)	Energy at Home ($n = 20$)	Entrepre-Neurship ($n = 4$)	Education ($n = 3$)	Other ($n = 9$)	All Practices ($N = 79$)	
	n	n	n	n	n	n	n	n	n	$\%$ ^b
East Asia and Pacific	-	2	2	5	1	1	1	-	12	15.2
South Asia	-	1	-	-	8	1	-	-	10	12.7
East. Europe and Central Asia	-	-	1	-	-	-	-	-	1	1.3
Western Europe	-	2	1	-	3	-	1	1	8	10.1
Middle East and N. Africa	-	1	-	-	1	-	-	-	2	2.5
West and Central Africa	-	-	-	-	1	-	-	-	1	1.3
East. and Southern Africa	-	2	-	-	-	-	-	-	2	2.5
Latin America ^c	-	1	1	-	3	1	-	1	7	8.9
North America ^d	-	3	4	15	3	1	-	4	30	38.0
Global	8	-	-	-	-	-	1	3	12	15.2
Not stated	-	1	-	-	-	-	-	-	1	1.3

^a Organizing or advocacy. ^b Total exceeds 100.0%; some practices were implemented in more than one region. ^c Latin America and Caribbean. ^d UNICEF (2017) assigns the North America classification to Canada and the United States; Mexico is classified with Latin America and Caribbean.

3.2.2. Practice Types

We categorized practices into eight types, which we present in the order of an approximate “macro” (e.g., global policy) to “micro” (e.g., education of individuals) spectrum of practice: global policy, national policy, local policy or planning, organizing or advocacy, energy at home, entrepreneurship, education, and other (for types with only 1–2 cases across the 79 practices). We acknowledge, however, that “macro/micro” is a false dichotomy and that integration is needed across all levels of social work practice when working towards social change [88].

“Global policy” accounted for 8 of the 79 practices (10.1%) and included descriptions of the Kyoto Protocol, Paris Agreement, United Nations Framework Convention on Climate Change, and World Fair Trade Organization principles. In some cases, policies were only briefly mentioned [67], while in others they were described in more detail and explicitly connected to practice roles for social workers [35,82].

“National policy” represented 11 of the 79 practices (13.9%) and included policies for carbon offsets, taxes or pledges, renewable energy targets or development, the Green New Deal, and national climate action plans. Similar to global policy, these ranged from being only briefly mentioned in the item (e.g., [80]) to described and analyzed in depth, including one case in which a gender critique of national climate policies was conducted [40].

Five of the seventy-nine practices (6.3%) focused on “local policy or planning” including: transition towns, sustainable community design, and walkable neighborhood development. In one item, the extent and growth of the transition town movement across 23 countries and five global regions was addressed [31].

“Organizing or advocacy” was the second largest type, with 19 of the 79 practices (24.1%). Most practices in this category focused on protesting or organizing against the fossil fuel industry, including oil pipelines, coal extraction, fracking, liquid gas hubs, oil dumping, and tar sands. This practice type tended to occur in high-income countries: Australia, Canada, and the United States. Additionally, over half of the 19 practices described Indigenous or Tribal leadership of resistance efforts, including five nations mentioned by name: The Beaver Lake Cree, Caribou, Oglala Lakota Sioux, Standing Rock Sioux, and United Houma. In 6 of the 19 practices, resistance to the Dakota Access Pipeline was a common example described.

“Energy at home” was the largest practice type, with 20 of the 79 practices (25.3%). Almost half focused on solar energy at home, and other practices included cleaner cookstoves; energy use, efficiency and weatherization; and bicycle blenders and solar ovens. Most solar energy at home and cleaner cookstove practices were implemented in lower- or middle-income countries (LMICs), including Afghanistan, Bolivia, India, Nigeria, Sri Lanka, Timor-Leste, and Yemen. Meanwhile, practices focused on energy use and efficiency were predominantly in higher-income countries (HICs): Belgium, England, Germany, and the United States. In addition, most practices in this group were implemented with rural or lower income populations.

“Entrepreneurship” accounted for 4 of the 79 practices (5.1%) and included solar energy livelihoods, pursuing a green economy, and the building and selling of bicycle blenders and solar ovens. These practices occurred in Bolivia, India, Timor-Leste, and the United States and tended to be implemented with women, rural communities, people with lower incomes, or Indigenous or Tribal communities.

“Education” captured 3 of the 79 practices (3.8%) and included educating the general public, educating students, and green power training for women. These practices occurred in Australia, Germany, and globally.

A remaining 9 of the 79 practices (11.4%) were categorized as “other”. These included practices related to individual behavior change, local food systems, community-based renewable energy, an environmental assessment toolkit, solar energy generally, and state policy, when such practices were not readily classified into the seven other types described above.

3.2.3. Overall Purpose

The purpose of most items describing practices was policy-related: 16 of 79 (20.3%) described policy, 18 (22.8%) described organizing, and 2 (2.5%) analyzed policy (Table 2). Another 16 (20.2%) were program evaluation or research about the process and/or outcomes of practice implementation, and 5 (6.3%) were descriptive research about experiences or perceptions related to the practice. Items whose purpose was not policy, evaluation, or research-related were largely classified as providing an example of an action to transition away from fossil fuels (20; 25.3%). Of note, the program evaluation or research category was concentrated on practices related to “energy at home”, including multiple studies of solar lamp programs in India (e.g., [45,49]), including four with overlapping author teams.

Table 2. Purpose Category of Literature that Describes the Practice, by Practice Type and for All Practices ($N = 79$).

Purpose	Global Policy ($n = 8$)	National Policy ($n = 11$)	Local Policy or Planning ($n = 5$)	Organiz. or Advoc. ^a ($n = 19$)	Energy at Home ($n = 20$)	Entrepreneurship ($n = 4$)	Education ($n = 3$)	Other ($n = 9$)	All Practices ($N = 79$)	
	n	n	n	n	n	n	n	n	n	%
Descriptive research										
Experiences	-	-	-	1	1	-	-	1	3	3.8
Perceptions	-	-	-	-	1	-	-	-	1	1.3
Both	-	-	-	-	1	-	-	-	1	1.3
Prog. eval. ^b or research										
Outcome(s)	-	-	-	-	5	-	2	-	7	8.9
Process	-	-	2	-	2	-	-	-	4	5.1
Both	-	-	1	-	2	2	-	-	5	6.3
Policy										
Describe policy	8	6	1	-	-	-	-	1	16	20.3
Describe organizing	-	1	-	17	-	-	-	-	18	22.8
Analyze policy	-	2	-	-	-	-	-	-	2	2.5
Example of action(s) ^c	-	2	-	1	8	2	1	6	20	25.3
Technical assessment	-	-	-	-	-	-	-	1	1	1.3
Conceptual or theoretical	-	-	1	-	-	-	-	-	1	1.3

^a Organizing or advocacy. ^b Program evaluation. ^c Describes action(s) only; exclusive or research, evaluation, or policy purposes.

3.2.4. Scale of Practice Implementation

The scale of practice implementation ranged from individuals or households to multiple nations (Table 3), with the most frequent scales being nation (11; 13.9%), more than one neighborhood, community, or village (11; 13.9%), neighborhood, community, or village (10; 12.7%), and more than one nation (9; 11.4%). Notably, combining the local-level scales into one category (i.e., neighborhood, community, or village; more than one neighborhood, community, or village; city or county; and more than one city or county), over one-third (39.2%) of practices were implemented at this level.

The practice types of “global policy” and “national policy” were implemented at the multinational or national scale, respectively. Other practice types ranged in their scales of implementation. The two practice types implemented across the widest range were “organizing or advocacy” (from individual or households to more than one Tribal nation) and “energy at home” (from individual or households to more than one city or county).

Table 3. Scale of Practice Implementation, by Practice Type and for All Practices (N = 79).

Scale of Implementation	Global Policy (n = 8)	National Policy (n = 11)	Local Policy or Planning (n = 5)	Organiz. or Advoc. ^a (n = 19)	Energy at Home (n = 20)	Entrepreneurship (n = 4)	Education (n = 3)	Other (n = 9)	All Practices (N = 79)	
	n	n	n	n	n	n	n	n	n	%
Individuals or households	-	-	-	2	3	-	2	1	8	10.1
Organization	-	-	-	1	1	-	1	2	5	6.3
Neighborhood ^b	-	-	2	2	4	-	-	2	10	12.7
Neighborhoods (2+)	-	-	-	1	7	2	-	1	11	13.9
City or county ^c	-	-	2	2	1	1	-	-	6	7.6
Cities or counties ^c (2+)	-	-	1	-	3	-	-	-	4	5.1
State or province ^c	-	-	-	2	-	-	-	1	3	3.8
States or provinces ^c (2+)	-	-	-	-	-	-	-	-	0	0.0
Tribal nation	-	-	-	7	-	-	-	1	8	10.1
Tribal nations (2+)	-	-	-	1	-	-	-	-	1	1.3
Nation ^d	-	11	-	-	-	-	-	-	11	13.9
Nations (2+)	8	-	-	-	-	-	-	1	9	11.4
Could not be determined	-	-	-	1	1	1	-	-	3	3.8

^a Organizing or advocacy. ^b Neighborhood, community, or village. ^c Or similar political or administrative unit. ^d Other than Tribal nation.

3.2.5. Target of Change

Practices targeted different systems in their efforts to transition away from fossil fuels (Table 4). Individuals or households were the most common target, with almost half of practices (46.8%) targeting this group, followed by private industry (32.9%), national policy (15.2%), and local policy or planning (10.1%). The emphasis on influencing individuals or households was driven mainly by practices in the “energy at home” category. Efforts to influence private industry, meanwhile, were driven mainly by practices in “organizing or advocacy”; as described previously, many of these were cases of Indigenous or Tribal resistance to fossil fuel extraction or development. The practice type of “national policy” had the widest spread across systems targeted for change, ranging from individual or households to national policy.

Table 4. Target of Change, by Practice Type and for All Practices (N = 79).

Target of Change	Global Policy (n = 8)	National Policy (n = 11)	Local Policy or Planning (n = 5)	Organiz. or Advoc. ^a (n = 19)	Energy at Home (n = 20)	Entrepreneurship (n = 4)	Education (n = 3)	Other (n = 9)	All Practices (N = 79)	
	n	n	n	n	n	n	n	n	n	% ^b
Individuals or households	-	2	3	1	20	3	3	5	37	46.8
Private industry	-	5	1	14	1	1	-	4	26	32.9
Local policy or planning	-	-	5	-	2	-	-	1	8	10.1
State or provincial policy	-	1	-	3	-	-	-	-	4	5.1
National policy	8	3	-	1	-	-	-	-	12	15.2
Could not be determined	-	2	-	-	-	-	-	1	3	3.8

^a Organizing or advocacy. ^b Total exceeds 100.0%; some practices targeted more than one system for change.

3.3. Study Strengths and Limitations

A strength of this review is its systematic and rigorous approach to identifying both peer-reviewed and grey literature at the nexus of social work and the transition away from fossil fuels. The expertise of a university librarian informed our approach, and at least two authors reviewed each item during the screening and inclusion process.

Limitations, meanwhile, are that our focus on social work literature may have overlooked other relevant practices that could inform social work practice for the transition away from fossil fuels. We chose this scope, however, because of our interest in assessing and documenting the state of social work contribution to this area, to date. Additionally,

though we did not limit our search to publications in English, there was one item which we excluded due to our team's inability to translate, and it is possible that the databases searched in this study limited their own inclusion of non-English-language publications. Finally, including other academic databases or grey literature sources could have yielded additional literature and practices not captured in this study.

4. Discussion and Directions for Social Work

4.1. Increase Social Work Engagement

Over a 15-year period, 58 social work literature items were published that met this study's inclusion criteria, containing 79 practices for the transition away from fossil fuels. Though there is an increasing trajectory of these items over time, the overall volume is low. With climate change as a critical social justice issue and threat multiplier for the health and well-being of all—especially of MAPAs who have historically contributed least to climate change—more social work engagement in climate mitigation is urgently needed. Social work expertise in systems thinking, community organizing, interprofessional practice, and skills of engagement, assessment, intervention, and evaluation are all salient for supporting climate mitigation and a transition away from fossil fuels.

Further, as social workers pursue new efforts in this space, doing so with an ecosocial worldview that challenges the status quo and is grounded in the interconnections of the ecological world in which we live is vital (e.g., how fossil fuel extraction harms not just humans but also the more-than-human world). As Powers et al. write (p. 1), social workers can “help shape new systems and structures that redress injustices and course correct us for a trajectory that is infinitely better than the one on which we are now set,” [9]. As the profession engages further in climate mitigation and advancement of the SDGs, social workers can do so with thoughtful critiques of sustainable development discourse in mind and in interdisciplinary partnership with other critical fields such as “living systems” scholars (e.g., [89]) and advocates who share values of infusing care, justice, and systems thinking into climate and ecological work.

4.2. Increase Policy Analysis and Advocacy at Global, National, and State Scales

As evidenced by the global nature of the SDGs, large-scale, systemic change to support SDG 13: Climate Action is needed to address the worldwide nature of the problem and its harms. While global and national policies for the transition away from fossil fuels were frequently described in this study's literature, they tended not to be analyzed in depth. In addition, they tended to be described as failed or inadequate policies of the past (e.g., Kyoto Protocol), rather than providing forward-looking policy recommendations or describing new or needed advocacy efforts at these scales. For the U.S., this finding about the limitations of national policy was also supported by a policy mapping of congressional proposals about climate change and social justice, which identified how few proposals were successfully passed by the 116th U.S. Congress [90].

Surprisingly, there was also little attention to state-level policy for the transition away from fossil fuels, though this could be a ripe area for social work advocacy and is regarded as one of the most salient points of intervention for climate policy [91]. Future social work research and advocacy may learn from states that have led the way with GHG reduction policies, for example, California [92] and Georgia [93] in the United States, which provide frameworks of policy action that may evade more partisan politics at national or international levels.

4.3. Build from Strengths of Local Level Change

While global and national change remain crucial, our findings also support the importance of focusing on change efforts at the local level. Action implemented at scales from one neighborhood, community, or village to more than one city or county were common in this study's literature and may be a strength for social work to continue building on in the transition away from fossil fuels. While large-scale mitigation efforts are essential to limit global

warming as much as possible, many communities will—and already are—experiencing the impacts of climate change.

Some social workers may use this finding to shift their focus to community-level interventions. This may include capacity building at the local level to decentralize energy systems and reduce reliance on failing systems. If communities can meet their own energy demands through localized energy systems, they can become self-sustaining, resilient, and prepared for climate impacts. Directions to explore could include community solar initiatives [94], community choice aggregation [95], and municipality networks [96]. These efforts may serve a dual goal of mitigation in the transition away from fossil fuels and adaptation by building capacity of localized energy systems, food systems, or small-scale solutions that are resilient to system break down or climate impacts. Such efforts would also tie SDG 13: Climate Action together with SDG 7: Affordable and Clean Energy. This is essential as we cannot just focus on transitioning away from fossil fuels without also transitioning to affordable and clean energy. This is especially true for marginalized populations, who already bear a higher energy burden (cost of energy bills vs. household income), rates of energy poverty, and least access to clean energy [97].

4.4. Diversify Targets of Change

Analyzing targets of change is important because it shows which systems the practices focused on for the impacts of intervention and change. The main target of change across practice types was individuals or households (46.8%), and this was even more concentrated for certain practice types: 87% of energy at home practices focused on individuals or households as their target of change. While many of these interventions focused on meeting immediate needs by providing accessible clean energy (e.g., cookstoves, solar lamps), it is notable that the further “scaled up” an intervention was, the fewer practices focused on it as a target of change. While higher level targets of change are not inherently better (e.g., Section 4.2 about lack of progress at global and national scales), an overfocus on individuals or households risks falsely individualizing a systemic, structural problem.

One way for social workers to consider diversifying their targets of change is to use a multi-tiered framework for systemic impact: scaling up, scaling out, and scaling deep [98]. Scaling up focuses on policies, laws, and large-scale change, while scaling out aims to disseminate successful interventions and replicate or adapt them in other communities. Scaling deep, meanwhile, considers changing relationships, values, and beliefs around an issue or problem. For successful action on transitioning away from fossil fuels, social work efforts at all three scales, and overlapping when possible, are needed.

4.5. Learn from Indigenous Leadership

Interestingly, while private industry was the second largest target of change across practices (32.9%), almost half of these efforts (46.2%) represented Indigenous resistance and organizing, especially against pipelines, tar sands, and other forms of extraction. The leadership of Indigenous resistance is also represented in the organizing and advocacy practice type, with 12 of the 19 organizing and advocacy practices being led by Indigenous peoples. Though some of these capture the same examples of resistance and organizing (e.g., against the Dakota Access Pipeline, as noted in Section 3.2.2), it is still noteworthy that social work literature is honing in on these cases as examples to learn from. Additionally, in addition to private industry, much Indigenous organizing targeted national policy, and was almost exclusively in high-income nations built on colonialism (U.S., Canada, and Australia), evidencing the intersectional nature of the climate crisis and colonialism, and highlighting the ongoing resistance of Indigenous peoples in protection of the earth.

These findings provide valuable insights for social workers to learn from in organizing, community work, and research, and with an ecosocial worldview that is indeed not new, but long embraced and upheld by Indigenous communities and knowledge [9,99]. By following the lead of Indigenous organizers, social workers can focus on those who are

most responsible for emissions and the climate crisis (i.e., industry and nation states) as a locus of change and intervention, as opposed to only targeting individual actions.

4.6. “Leapfrog” Energy in LMICs, Reduce Energy in HICs

“Energy at home” was the largest practice type found by this study. Practices documented from LMICs tended to “leapfrog” or jump to cleaner or renewable energies, without an intensive fossil fuel extraction phase [100], and were the majority practice of this type. Practices documented from HMICs, meanwhile, often focused on reducing usage rather than, or in some cases in addition to, replacing fossil fuel energy with cleaner sources. Social work engagement with energy leapfrogging in LMICs can continue to advance both clean energy and social development goals, as access to electricity can improve an array of outcomes including education, employment, and safety (e.g., [28,38]). Further, leapfrogging can provide a concrete way to redress historical injustices of extraction from LMICs to fuel energy in HMICs, while LMICs have borne disproportionate burdens of energy poverty and related barriers to societal health and well-being [101].

4.7. Embrace Intersectionality of Sustainable Development Goals

While this study most closely aligns with SDG 13: Climate Action and SDG 7: Affordable and Clean Energy, many of the included practices also connect to other SDGs. For example, the practice of clean cookstoves connects with several SDGs, such as: SDG 1: No Poverty (poverty is a key component of access); SDG 2: Zero Hunger (cookstove access can reduce hunger); SDG 3: Good Health and Well-being (pollution from indoor cookstoves is a health issue); SDG 5: Gender Equality (there is a global burden on women and girls of collecting fodder for cookstoves and indoor air pollution exposure); and more.

While this is not an exhaustive list of the impacts of clean cookstoves, it shows how one intervention focused on the transition *from* fossil fuels *to* clean energy sources not only meets immediate needs but has an interconnected web of influence on several SDGs. This holistic focus of how one climate mitigation practice actually has multiple effects and connection points is closely related to the holistic focus of ecosocial work, highlighting the interconnectedness of ecosocial issues and the potential to impact change at multiple scales. Findings from this study can thus be used to encourage social work research and action in support of a number of SDGs. While social work can learn from the SDGs as a common language and interdisciplinary focus of intervention, ecosocial work also has much to offer the SDGs. Using an ecosocial lens, social workers can implement SDG-related actions in a way that moves from growth-focused sustainability to interconnection, regeneration, and reciprocity.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/su14127086/s1>, Table S1: Summary of Practices (N = 79) Identified in the Literature, Organized by Practice Type.

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