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**ECONOMIC EFFECTS
OF ELIZABETH
WARREN'S PROPOSED
GREEN JOBS PLAN**

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Elizabeth Warren’s campaign for president has released a Green Jobs Plan. Data for Progress studied the potential impact of the sweeping Green New Deal-style policy proposal and found the plan should be expected to produce:

- ▶ 5,400,000 jobs over a ten year mobilization as a result of direct federal investment in new and existing clean industries and implementation of green technologies.
- ▶ 10,600,000 likely new jobs due to strategic support for U.S. renewable manufacturing and export-oriented economic policy, assuming each federal dollar invested yields an additional 1.5 in exports and induced private-sector activity.¹

| | Direct jobs (thousands) | Scaled up to reflect increased new private demand and exports (thousands) |
|----------------|-------------------------|---|
| Energy | 3,060 | 6,840 |
| Transportation | 1,180 | 2,600 |
| Buildings | 970 | 970 |
| Water | 190 | 190 |
| Total | 5,400 | 10,590 |

**totals may not sum due to rounding*

Green New Deal as Industrial Policy

Senator Warren’s plans strategically combine a focus on rebuilding our country’s infrastructure with big New-Deal style programs to create jobs and spur economic growth. The package of plans proposed by Senator Warren align with the principles of the Green New Deal, but they are also designed to function as industrial development policy.

As with most policies designed to promote renewables and energy efficiency, this bundle of programs should be expected to nurture growing industries, lowering prices as expertise, technologies, and economies of scale develop. Warren’s plans bring an additional focus to industrial development, particularly with the Green Marshall Plan, designed to promote exports of US-made manufactured goods in renewable sectors abroad. As with the original Marshall Plan, this may initially function largely as aid to countries rebuilding their infrastructure to address climate change, but should be expected to similarly build a substantial and durable market for US goods abroad over the long term.

Economists such as Ha-Joon Chang and Alice Amsden have shown how active industrial policy, including export promotion, has as a rule been associated with economic success stories and development “miracles” historically.² The effects of export promotion built into these policies aren’t directly captured in the input-output multipliers used to calculate new jobs estimates, but have dramatic potential to position U.S. manufacturing in the center of a new global industry for renewables and green technology, just as the original Marshall Plan played no small part in the US position in the postwar era as a heavy manufactured commodity exporter. The extension of the input-output model to roughly estimate new exports and induced activity calls attention to this likelihood.

Summary of Green Jobs Plan Expenditures

| | Dollars (billions) | Percent of total |
|------------------------------------|-----------------------|------------------|
| Affordable Housing Plan | 470 | 11 |
| Water infrastructure upgrades | 96.4 | 02 |
| Build Green Program | 200 | 05 |
| 100% Clean Energy Plan | 1,000 | 24 |
| Green Apollo Program | 400 | 10 |
| Green Industrial Mobilization | 1,500 | 36 |
| Green Marshall Plan | 100 | 02 |
| GND for public housing | 172 | 04 |
| K-12 plan | 50 | 01 |
| New Farm Economy water investments | 143 | 03 |

A Note on Transitioning to a Green Economy

Green New Deal style policies have been criticized as being an “inefficient” mechanism to reach the goal of decarbonization. By promising jobs and economic revitalization, critics contend that GND policies tack on unnecessary programs to what should be a singular goal of climate change mitigation. However, it’s important to note that building a broad coalition for change is a necessary step towards decarbonization. The creation of good jobs is a primary goal for workers who have struggled with deindustrialization and young people coming of age in an economy with scarce dwindling economic opportunities, but it should also be a goal for everyone concerned with maintaining a strong coalition to maintain a livable climate. As has been noted in another [Data for Progress memo](#), “a transition without the broad support of workers may jeopardize the entire project of decarbonization, and it may further fray the social fabric of our already divided country. As recent experiences in France demonstrate, environmental policies that exacerbate inequality and fail to protect the working class risk a ferocious backlash—and for good reason.”

We agree with the Warren campaign that overcoming climate change is not just a necessity, but is also an opportunity, both for creating good jobs and building a coalition to support sustainable policies and technologies. Focus on the job-creation, or New Deal, aspects of these policies here reflects this reasoning.

Methodology

The jobs estimates described above are the result of a national input-output model. Dollar amounts were associated with each one of the GND-style plans currently in the platform, based on plan outlines from Elizabeth Warren’s presidential campaign. The direct demand effects were broken down by North American Industry Classification System (NAICS) industry also based on existing descriptions of the plans. Then, employment multipliers derived from the Bureau of Economic Analysis (BEA) were applied to each demand effect on each industry to yield total jobs.

Three plans, Green Industrial Mobilization, 100% Renewable Energy, and the Green Marshall Plan, were determined to promote renewable energy products and the export of these products abroad. The demand effect from these three plans were broken down across four renewable sectors as follows:

| | |
|-----------------|----|
| Wind | 42 |
| Solar | 20 |
| Surface transit | 22 |
| Grid upgrades | 16 |

Because these emergent sectors don't yet line up to existing NAICS classifications, a breakdown of each sector by NAICS industry determined by Pollin et al 2019 was applied to each sector.³ This allowed demand effects on renewables sectors to be aggregated along with demand effects on other industries by NAICS code. The breakdown of direct demand effect of these three plans by NAICS industry follows in the table below.

| Industry code | Industry name | Dollars (billions) |
|---------------|---|--------------------|
| 15 | Construction | 715.52 |
| 64 | Industrial machinery manufacturing | 495.04 |
| 101 | Transit and ground passenger transportation | 245.96 |
| 68 | Engine, turbine, and power transmission equipment manufacturing | 227.76 |
| 78 | Electrical equipment manufacturing | 208 |
| 130 | Management, scientific, and technical consulting services | 167.44 |
| 43 | Plastics product manufacturing | 131.04 |
| 56 | Architectural and structural metals manufacturing | 131.04 |
| 73 | Semiconductor and other electronic component manufacturing | 123.76 |
| 82 | Motor vehicle parts manufacturing | 120.12 |
| 84 | Railroad rolling stock manufacturing | 34.32 |

Other GND-style plans in this platform were aggregated directly by NAICS industry as follows:

Percent Dollar Allocations

| | Forestry | Water, sewage and other systems | Construction | Engine, turbine, and power transmission equipment manufacturing | Electrical equipment manufacturing | Motor vehicle parts manufacturing | Railroad rolling stock manufacturing | Transit and ground passenger transportation | Architectural, engineering, and related services | Scientific research and development services | Junior colleges, colleges, universities, and professional schools; private |
|------------------------------------|----------|---------------------------------|--------------|---|------------------------------------|-----------------------------------|--------------------------------------|---|--|--|--|
| New Farm Economy water investments | 15 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Green Apollo Program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 20 |
| K-12 plan | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Build Green Program | 0 | 0 | 0 | 20 | 10 | 40 | 10 | 10 | 10 | 0 | 0 |

The percent allocations in this table were scaled by total spending to get direct demand impacts by sector. These were then combined with the demand effect of other plans and scaled by multipliers derived from industry input-output BEA data by Josh Bivens at the Economic Policy Institute to get total jobs.⁴

For some components of the platform, job estimates were derived differently. Jobs from increased funding for the Army Corps of Engineers were estimated by linearly scaling current employment in that corps by the increased funding. New jobs from housing programs were obtained by scaling [previous Data for Progress estimates](#) for the Green New Deal for Public Housing Act to each component of the housing plan.⁵

A Note on the Methodology

The set of policies analysed here as comprising Senator Warren’s GND platform would have potentially transformative effects on the U.S. economy. A major goal of her Green Industrial Mobilization, Green Apollo, and Green Marshall plans would be to turn fledgling industries into massive exporters and revitalize U.S.’s manufacturing sectors. The input-output model used here uses existing industry linkages to estimate indirect economic effects of growth in a particular sector or set of sectors; it’s therefore not designed to model the sort of potentially *transformative* policies looked at here, which could change the sectoral composition of the economy. However, we are confident that these estimates are reasonable projections based upon existing literature and models, though they are likely conservative due to the big, structural change called for in these proposals.

ENDNOTES

1. This additional multiplier is only applied to aspects of plan associated with industries tied to a new export-promotion office proposed in one of the plans, the Green Marshall Plan. These include the Green Industrial Mobilization and 100% Renewable Energy plan, in addition to the Green Marshall Plan. While the direct jobs number is estimated from an input-output model built with BEA data (described in this appendix), this second is estimated from an ad hoc extension of that model can be treated as a rougher estimate.
2. Chang, Ha-Joon. *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism*. New York, NY: Bloomsbury Press, 2008. Print.
Chang, Ha-Joon. *Kicking Away the Ladder: Development Strategy in Historical Perspective*. London: Anthem, 2002. Print.
Amsden, Alice H., 1992. "Asia's Next Giant: South Korea and Late Industrialization," OUP Catalogue, Oxford University Press, number 9780195076035.
3. <https://www.peri.umass.edu/economists/robert-pollin/item/1168-a-green-growth-program-for-colorado>
4. <https://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy/>
5. These estimates were obtained in a similar way through national multipliers derived from input-output tables.

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